XR4 WASH

User's Manual Rel 1.1 **GB**

D.T.S. Illuminazione srl - ITALY
http://www.dts-lighting.it

DTS
The Lighting Company

Made in Italy

Le informazioni contenute in questo documento sono state attentamente redatte e controllate. Tuttavia non è assunta alcuna responsabilità per eventuali inesattezze. Tutti i diritti sono riservati e questo documento non può essere copiato, fotocopiato, riprodotto per intero o in parte senza previo consenso scritto della D.T.S.
DTS si riserva il diritto di apportare senza preavviso cambiamenti e modifiche estetiche , funzionali o di design a ciascun proprio prodotto. D.T.S. non assume alcuna responsabilità sull'uso o sull'applicazione dei prodotti o dei circuiti descritti.

The information contained in this publication has been carefully prepared and checked. However, no responsibility will be taken for any errors. All rights are reserved and this document cannot be copied, photocopied or reproduced, in part or completely, without prior written consent from D.T.S.
D.T.S. reserves the right to make any aesthetic, functional or design modifications to any of its products without prior notice. D.T.S. assumes no responsibility for the use or application of the products or circuits described herein.

Les informations contenues dans le présent manuel ont été rédigées et contrôlées avec le plus grand soin. Nous déclinons toutefois toute responsabilité en cas d'éventuelles inexactitudes. Tous droits réservés. Ce document ne peut être copié, photocopié ou reproduit, dans sa totalité ou partiellement, sans le consentement préalable de D.T.S.
D.T.S. se réserve le droit d'apporter toutes modifications et améliorations esthétiques, fonctionnelles ou de design, sans préavis, à chacun de ses produits. D.T.S. décline toute responsabilité sur l'utilisation ou sur l'application des produits ou des circuits décrits.

Las informaciones contenidas en este documento han sido cuidadosamenteredactadas y controladas. Con todo, no se asume ninguna responsabilidad por eventuales inexactitudes.
Todos los derechos han sido reservados y este documento no puede ser copiado, fotocopiado o reproducido, total o parcialmente, sin previa autorizaciónescrita de D.T.S.
D.T.S. se reserva el derecho a aportar sin previo aviso cambios y modificaciones de carácter estético, funcional o de diseño a cada producto suyo. D.T.S. no se asume responsabilidad de ningún tipo sobre la utilización o sobre la aplicació
n de los productos o de los circuitos descritos.

INDEX:

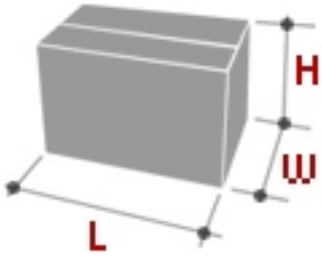
1- TECHNICAL FEATURES 4
2- IMPORTANT SAFETY INFORMATION 5
2.1 Fire prevention
2.2 Prevention of electric shock
2.3 Protection against ultraviolet radiation
2.4 Safety
2.5 Level of protection against the penetration of solid and liquid matter
3- MOUNTING THE LAMP 6
3.1 Lamp alignment
4- VOLTAGE AND FREQUENCY 7
5- INSTALLATION 7
5.1 Safety cable
5.2 Protection against liquids
5.3 Movement
5.4 Risk of fire
5.5 Forced ventilation
5.6 Ambient temperature
6- MAINS CONNECTION 8
6.1 Protection
7- DMX SIGNAL CONNECTION 9
7.1 DMX Addresses
7.2 Selecting the DMX address
8- DISPLAY FUNCTIONS 11
9- PAN & TILT SPEED 14
10- FANS SPEED
11- ERROR MESSAGES
12- HIDDEN MENU 15
13- OPENING THE PROJECTOR HOUSING 16
14- PERIODIC CLEANING
14.1 Lenses and reflectors
14.2 Fans and air passages
15- PERIODIC CONTROLS
16- DMX PROTOCOLS 17
17-COLOUR WHEEL 20

1- TECHNICAL FEATURES

The new XR4 WASH is one of the brightest moving heads in the 250W range.
The XR4 WASH is fitted with a discharge 250W lamp (MSD 250/2) combined with a dichroic parabolic reflector which gives a light efficiency of 5.200 Lux at 5 mt (17°).
XR 4 WASH incorporates a multi step zoom, a colour wheel (8 dichroic filters + open, with linear selection), electromagnetic ballast. The internal operating system can be updated via DMX. The XR4 WASH is suitable for use in concerts, shows, tours and special events, as well as in clubs, theatres, permanent installations and all other applications requiring a compact light with high luminous output. The XR4 WASH offers also a new design, modern and elegant, important for easy installation even in the most refined settings.

XR4 WASH (Cod. 03.MW004.L)
Power supply 230V 50/60 Hz
XR4 WASH (Cod. 03.MW004.100.L)
Power supply 100V 50/60 Hz
XR4 WASH (Cod. 03.MW004.120.L)
Power supply 120V 50/60 Hz

Also available in white (RAL 9003) colour on demand.
Lamp: Philips MSD 250/2 Automatic restrike of lamp in case of accidental switching off
Optical group: Fresnel lens Ø 150 mm; dichroic parabolic reflector. 5.200 Lux / 5 m (17°)
Zoom: Multi step zoom
Dimmer / shutter / strobo: Linear dimmer; Shutter; Strobe from 0,85 flash/sec to 10 flash/sec
Colours: Colour wheel (8 colours + open) with linear selection for perfect 2-colour beams; Colour change with blackout sync; Rainbow effect
Pan / Tilt: Pan 540° (2,8 sec.); Tilt 270° (2 sec.);
16-bit resolution; 6-Speed function (6 selectable pan/tilt speeds)
10 DMX channels
Internal operating system updatable via DMX, Reset via DMX
Connections: 4 XLR connectors (3-pole In and Out; 5-pole In and Out) by Neutrik POWERCONN connector by Neutrik
Power supply: Electromagnetic ballast;
Power supply 230V 50/60 Hz; 100V 50/60 Hz and 120V 50/60 Hz on request;
Power consumption: 350 W
Operating ambient temperature: -10° / 40°
Weight: 18 Kg



Packing Dimensions (HxWxL)
550 x 440 x 880 mm

Weight
25 Kg

2- IMPORTANT SAFETY INFORMATION

2.1 Fire prevention:

XR4 can fit a Philips MSD250/2 or a Osram HSD250/2 or a GE CSD250/2.
The use of any other alternative lamp is not recommended and will null and void the fixture's warranty.
-Never locate the fixture on any flammable surface.
-Minimum distance from flammable materials: 1 MT.
-Minimum distance from the closest illuminable surface: 2 MT.
-Replace any blown or damaged fuses only with fuses of identical value. Refer to the wiring diagram if there is any doubt.
-Connect the projector to mains power via a thermal magnetic circuit breaker.

2.2 Prevention of electric shock:

-High voltage is present inside the unit. Unplug the unit prior to performing any function which involves touching the inside of the moving head, including lamp replacement.
-The level of technology present in the XR4 requires the assistance of specialised personnel for all servicing. Please refer to an authorised DTS service centre.
-A good earth connection is essential for proper functioning of the projector.
-Never connect the unit without proper earth connection.
-The fixture should be located in places with a good air ventilation.

2.3 Protection against ultraviolet radiation:

-Never turn on the lamp if any of the lenses, filters or ABS covering is damaged. Their respective shielding functions will only operate efficiently if they are in perfect working order.
-Never look directly the lamp when it is on.

2.4 Safety:

-The projector should always be installed with bolts, clamps and other tools that are capable of supporting the weight of the unit.
-Always use a second safety cable to sustain the weight of the unit in case of the failure of the main fixing point.
-The external surface of the unit, at various points, may exceed 70°C. Never handle the unit until at least 10 minutes have elapsed since the lamp was turned off.
-Always replace the lamp if any physical damage is evident.
-Never install the fixture in an enclosed area lacking sufficient air flow. The ambient temperature should not exceed 40°C.
-A hot lamp may explode, so always wait for at least 10 minutes prior to attempting to replace the lamp.
-Always wear suitable hand protection when handling the lamp.

2.5 Level of protection against the penetration of solid and liquid matter:

-The projector is classified as an ordinary appliance and its protection level against the penetration of solid and liquid matter is IP 20.

3- MOUNTING THE LAMPS

Warning: Switch off the unit before replacing the lamp.

Philips MSD250/2
Power 250W
Luminous flux 18.000 lm
Colour temperature 8.500°K
Lampbase GY9,5
Rated life 3,000 hours

1) Using a screwdriver, remove the 3 screws X,Y, Z, (photo 1) which fix the lamp holder.

Photo 1

Photo 2

Photo 3

2) Remove the lamp holder assembly and insert the lamp (photo 2).
The lamp used on XR4 is made in quartz glass and should be handled with care. Always follow the instructions supplied in the lamp's packaging. Never touch the glass directly but use the tissue provided in the lamp's packaging. The GY9,5 lamp socket is not symmetrical.
DO NOT USE UNDUE FORCE ON THE GLASS. In case of difficulty, read again the instructions and repeat the procedure.
3) Replace the lamp assembly and tighten the screws X,Y,Z, which were previously removed (photo3).

3.1 Lamp alignment

Attention: we recommend to align the lamp in the optical system to avoid overheating of the dichroic filters and other components inside the unit.

Photo 5

Alignment is carried out using the 3 adjusters A, B and C.
During this operation you must have a uniform luminosity all around the projected area.

4- **VOLTAGE AND FREQUENCY**

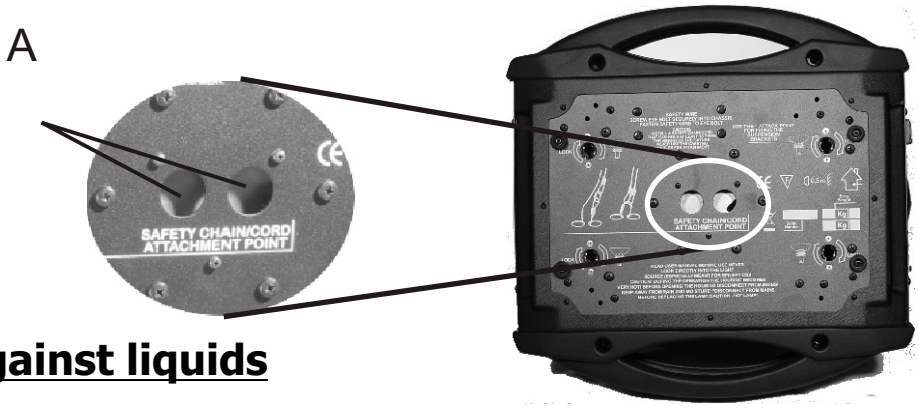
The XR4 with electromagnetic ballast can operate at 230 VOLT 50-60 Hz.
(100V 50/60 Hz and 120V 50/60 Hz on request)

5- **INSTALLATION**

XR4 may be either floor or ceiling mounted.
For floor mounting installations, the XR4 is supplied with four rubber mounting feet on the base.
For ceiling mounted installations, we reccomend the use of appropriate clamps to fix the unit to the mounting surface.
The supporting structure from which the unit is hung should be capable of bearing the weight of the unit, as should any clamps used to hung it. The structure should also be sufficiently rigid so as not to move or shake whilst the XR4 is moving.
Four quarter turn fast locks placed on the base of the units,allows by using the two fast lock C clamps provided in the box, to fix the unit in any position.
.

5.1- Safety cable

We recommend the use of a safety cable or chain connected to the XR4 and to the suspension truss in order to avoid the fixture accidentally falling should the main fixing point fail. Make sure that the iron cable or chain can bear the weight of the entire unit.
You may attach the safety chain to the two holes (A) located on the base of the fixture, as shown in the picture below.



5.2- Protection against liquids

The projector contains electric and electronic components which should under no circumstances come into contact with oil, water or any other liquid. The proper unit functioning would be compromised should this occur.

5.3- Movement

The projector has a maximum movement of 540° for Pan and 270° for Tilt. DO NOT place any obstructions in the path of the projector's movement.

5.4- Risk of fire

Each fixture produces heat and must be installed in a well-ventilated place. The minimum recommended distance from flammable material is 1 MT.
Minimum distance from the object being illuminated is 2 MT.

5.5- Forced ventilation

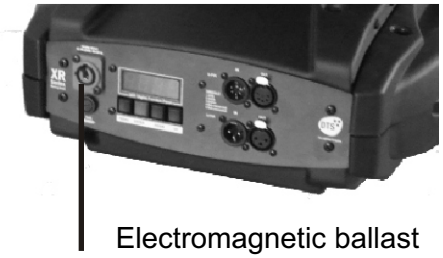
You will note, on inspection, that the unit features various air inlets and cooling fans located on both the base and head of the fixture. These should, under no circumstances, be blocked or obstructed whilst the projector is in operation.
Doing so could cause the fixture to seriously overheat thereby compromising its proper operation.

5.6- Ambient temperature

The projector should never be installed in places that lack a constant air flow. The ambient temperature should NOT exceed 40°C.

6- MAINS CONNECTION

XR4 with electromagnetic ballast operate at 230 VOLT 50-60 Hz.
(100V 50/60 Hz and 120V 50/60 Hz on request)
Prior to connecting the unit to your mains supply, ensure that the model in your possession correctly matches the mains supply available. For connection purposes, ensure that your plug is capable of supporting 3,15 amps at 230V, or 6 amps at 100/120V.
Strict adherence to regulatory norms is strongly recommended.



Electromagnetic ballast
230V 50 / 60Hz
(100V 50/60 Hz
and 120V 50/60 Hz
on request)

6.1- Protection

The use of a thermal magnetic circuit breaker is recommended for each XR4.
A good earth connection is essential for the correct operation of the projector.

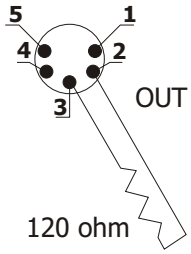
7- DMX SIGNAL CONNECTION

The unit operates using the digital DMX 512 (1990) signal. Connection between the mixer and the projector or between projectors must be carried out using a two pair screened ø 0.5 mm cable and a CANNON XLR 5 or 3 pins connector.

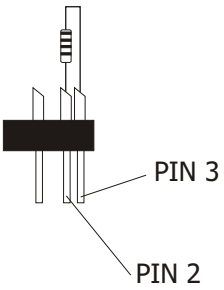
Ensure that the conductors do not touch each other.Do not connect the cable ground to the XLR chassy
The plug housing must be isolated. Connect the mixer signal to the DMX IN projector plug and connect it to the next projector by connecting the DMX OUT plug on the first projector to the DMX IN plug of the second one.
In this way, all the projectors are cascade connected.
NB. <u>If the display showing the DMX address flashes, then one of the following errors has occurred:</u>

- DMX signal not present
- DMX address not valid
- DMX reception problem

For Installations where long distance DMX cable connections are needed,we suggest to use a DMX terminator.
The DMX terminator is a male XLR 3-5 pins connector with a 120 ohm resistor
Between pin 2 and 3.
The DMX terminator must be plugged into the last unit (DMX out panel connector) of the DMX line.



PLACE A 120 OHM RESISTOR BETWEEN PIN 2 AND 3 OF A MALE XRL CONNECTOR AND PLUG IT INTO THE DMX OUT PANEL CONNECTOR OF THE LAST UNIT CONNECTED TO THE DMX LINE



7.1-DMX Addresses

XR4 WASH have 10 DMX channels.

Set the following addresses on the mixer:

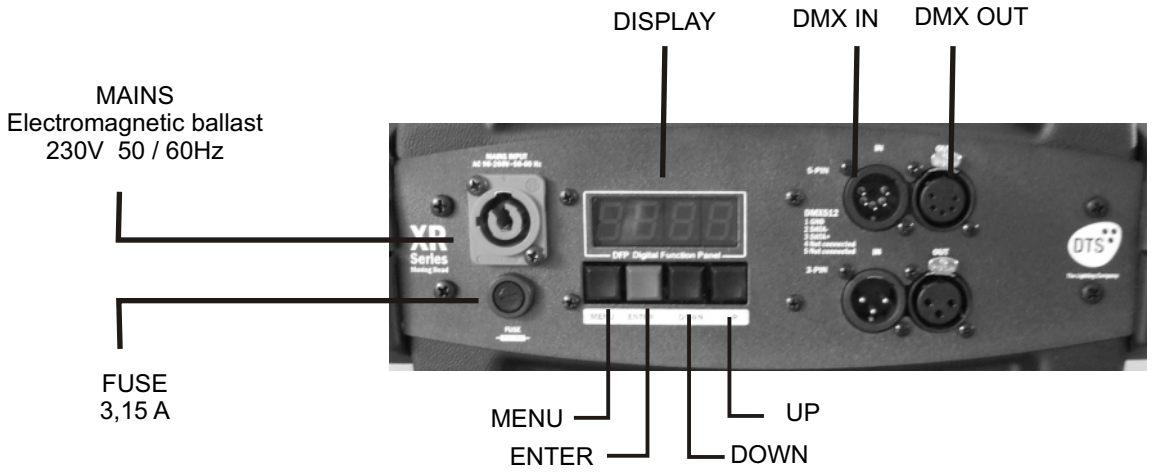
Projector 1	A001	
Projector 2	A011	If you want to select the next projector, just add "10"
Projector 3	A021	
…..	A….	
projector 6	A051	

7.2-Selecting the DMX address

1) Press the UP-DOWN key until you reach the required DMX channel. The numbers on the display will start to flash (but the new DMX address hasn't yet been set).
2) Press ENTER to confirm your selection. The numbers on the display will stop flashing and the projector is now setted to the new DMX address.

TRICKS:
if you keep pushed the UP or DOWN keys, the channels are calculated more quickly and you get a faster selection.

8- DISPLAY FUNCTIONS



DISPLAY FUNCTIONS

The XR4 display panel shows all the available functions . Using these functions, it is possible to change some of the parameters and add some functions. Changing the DTS setting can vary the functions of the unit so that it does not respond to the DMX 512 used to control it. Carefully follow the instructions below before carrying out any variations or selections.
NOTE: the symbol ☞ shows which key has to be pushed to obtain the desired function.

A001 — MENU — Up-Down — Pd ir — ENTER — Up-Down — CU — Clockwise — ENTER

PAN MOVEMENT INVERSION
To reverse Pan movement from left to right and vice versa

Up-Down — CCU — Counterclockwise — ENTER

MENU — Up-Down — td ir — ENTER — Up-Down — CU — Clockwise — ENTER

TILT MOVEMENT INVERSION
To reverse Tilt movement from bottom upwards and vice versa

Up-Down — CCU — Counterclockwise — ENTER

MENU — Up-Down — diSP — ENTER — Up-Down — POSI — ENTER — Up-Down — AA — Floor position — ENTER

bb — Suspension position — ENTER

REVERSE DISPLAY
Reverses display's reading depending on the mounting position
(On the ground or suspended).

Up-Down — StbY — ENTER — Up-Down — oFF — Display OFF — ENTER

on — Display always ON — ENTER

DISPLAY STAND BY
To turn off the display (after 5 seconds)
Or leave it always on.

8- DISPLAY FUNCTIONS

MENU Up-Down **tESt** ENTER Up-Down

TEST MODE
Full test and single function test.

ALL	ALL
PAN	PAn
TILT	tILt
DIMMER	dIMM
SHUTTER	SHUt
COLOR	COLr
EFFECTS	EFF

MENU Up-Down **rESE** ENTER Up-Down

RESET
Al motors reset

En	RESET ENABLED VIA DMX	ENTER
dS	RESET DISABLED VIA DMX	ENTER
rESE	TOTAL RESET	ENTER

MENU Up-Down **dFSE** ENTER **SUrE** ENTER

DEFAULT
To restore default setting

MENU Up-Down **SOFt** ENTER **16**

SOFTWARE
Software version

Pcb 8 motors.

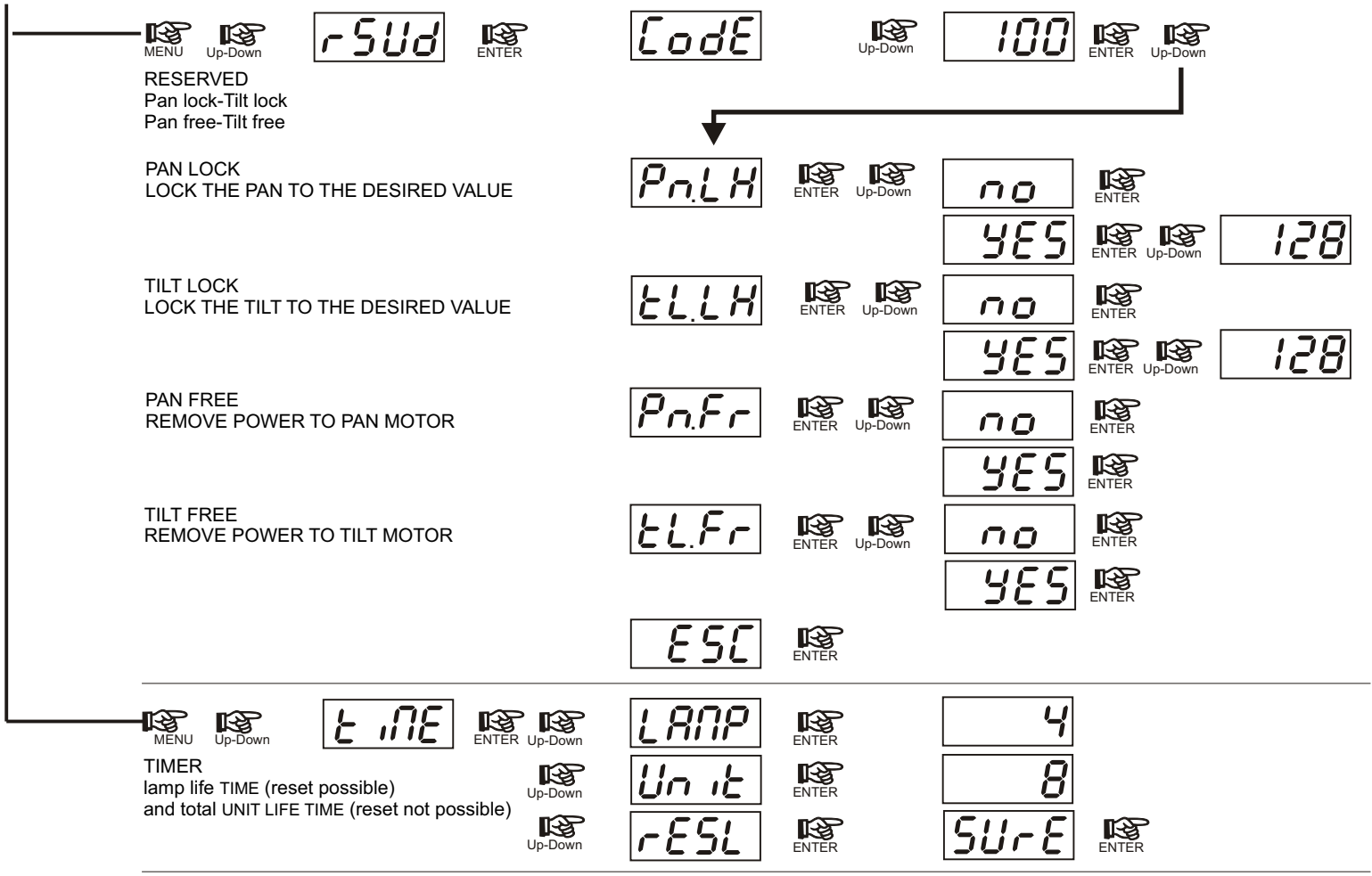
MENU Up-Down **FAnS** ENTER Up-Down **1** ENTER **12** ENTER (DEFAULT : 12)

Fan control
To control the fan speed .

MENU Up-Down **SPEE** ENTER Up-Down **1** ENTER **4** ENTER (DEFAULT : 2)

SPEED control
Pan Tilt Speed control.

8- DISPLAY FUNCTIONS



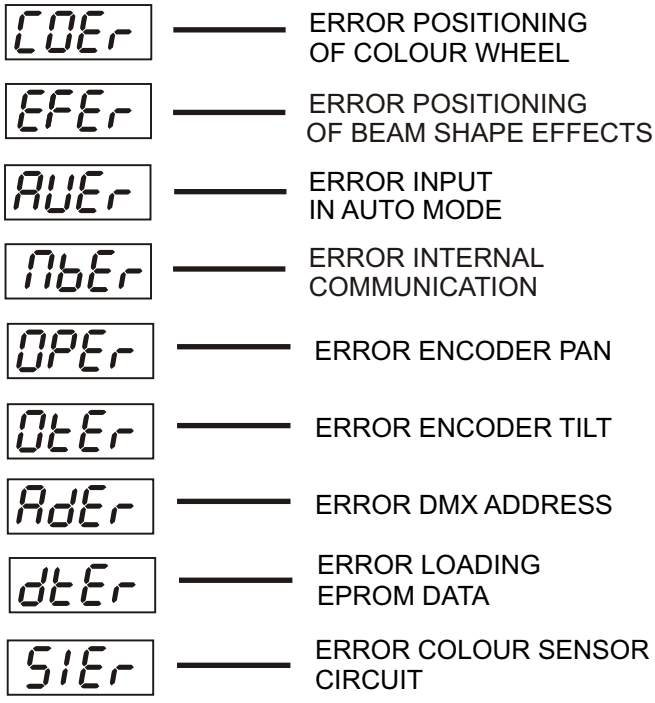
9- PAN & TILT SPEED (SPEE) (default: 2)

You can set the PAN and TILT motors at high speed on your XR4.
Press menu until you see SPEE.
Press ENTER and select a speed with UP-DOWN (there are 4 speeds). Confirm by pressing ENTER.
When you use speed 4 (the highest) PAN and TILT speed is very high and your projector may loose its path. In this case, the encoder corrects the position.

10- FAN SPEED (FANS)(default: 12)

Fan speed regulation makes it possible to reduce fan noise. However, the ambient temperature must be less than 35° C.

11- ERROR MESSAGES:



12- HIDDEN MENU

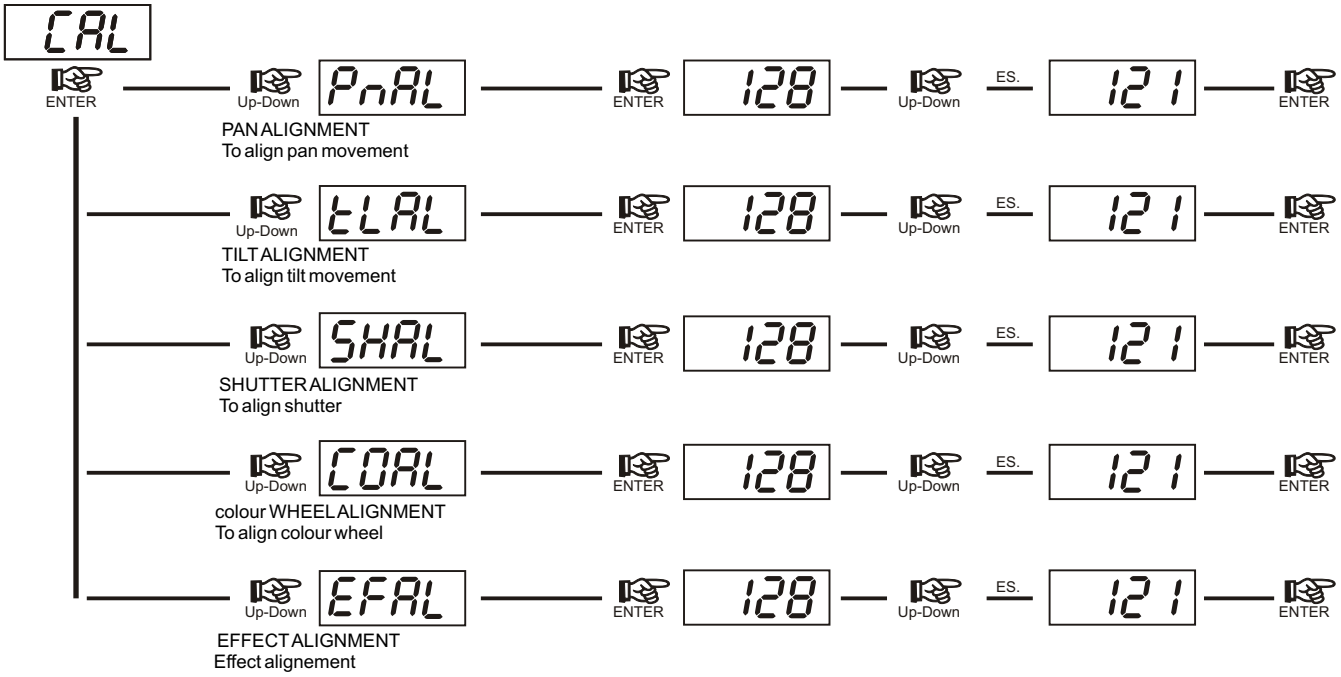
For technical personnel only.

To operate this menu:

-Connect the projector to the DMX controller (DMX SIGNAL MUST BE CORRECTLY RECEIVED)

- Reset the XR4 (reset from the MENU, not from the DMX controller!).
- While reset is running, press the MENU and ENTER keys at the same time.

CAL	Electronic calibration of the motors.
rESN	Reset EEPROM (Reset all settings. ATTENTION: by pressing this key you must repeat all previous calibrations)
ESC	Exit from hidden menu.



13- OPENING THE PROJECTOR HOUSING

It is possible to inspect the inside of the projector by removing the cover as indicated below.

ATTENTION
REMOVE MAINS POWER PRIOR TO ACCESSING THE PROJECTOR'S INTERNAL COMPONENTS.

1) Loosen the 3 (1/4 turn) screws which fix the head covers (photo 1) .
2) Once unscrewed, simply lift the covers to access the internal components (photo 2).

Photo 1

Photo 2

14- PERIODIC CLEANING

14.1- Lenses and reflectors

Even a fine layer of dust can substantially reduce the luminous output . Regularly clean all lenses and the reflector using a soft cotton cloth, dampened with a specialist lens cleaning solution.

14.2- Fans and air passages

The fans and air passages must be cleaned approximately every 6 weeks. This periodic cleaning will depend of course, on the conditions in which the projector is operating. Suitable instruments for performing this type of maintenance are a brush and a common vacuum cleaner or an air compressor. If necessary, clean the fans and air passages more frequently.

15- PERIODIC CONTROLS

Lamp

The lamp should be replaced if there is any visible damage or deformation due to heat. This will help to avoid the danger of the lamp exploding.

Mechanical parts

Periodically check all mechanical parts, gears, guides, belts, etc. for wear and tear, replacing them if necessary. Periodically check the lubrication of all components, particularly the parts subject to high temperatures. If necessary, lubricate with suitable lubricant, available from your D.T.S. distributor. Check the tension of the belts and adjust it if necessary.

Electrical components

Check all electrical components for correct earthing and proper connection of all connectors; refasten them if necessary.

Fuse replacement

Locate the fuse, which protects the lamp and electronics, in the base of the XR8.
Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type if necessary.

16- DMX PROTOCOL

10 CHANNEL MODE (16bit)

1 PAN msb (540°)
2 PAN lsb
3 TILT msb(270°)
4 TILT lsb
5 MOVEMENT SPEED
6 DIMMER
7 SHUTTER
8 COLOUR
9 EFFECT
10 RESET

DMX CHANNEL	1	Parameter: **PAN msb 540°**

DMX CHANNEL	2	Parameter: **PAN lsb**

DMX CHANNEL	3	Parameter: **TILT msb 270°**

DMX CHANNEL	4	Parameter: **TILT lsb**

DMX CHANNEL	5	Parameter: **MOVEMENT SPEED**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-10					**Standard**
11-25					**Fast movement**
26-127					**Vector mode from fast to slow**
128-247					**Variable time reaction to DMX signal (fast to slow)**
248-255					**Slow reaction time to DMX signal**

DMX CHANNEL	6	Parameter: **DIMMER**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-7					**Black-out**
8-255					**Proportional dimmer**

DMX CHANNEL	7	Parameter: **SHUTTER**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-19					**Black-out**
20-39					**Open**
40-59					**Black-out**
60-79					**Strobe random speed**
80-89					**Strobe speed 1 min.**
90-99					**Strobe speed 2**
100-109					**Strobe speed 3**
110-119					**Strobe speed 4**
120-129					**Strobe speed 5**
130-139					**Strobe speed 6 max.**
140-149					**Flash open speed 1 min.**
150-159					**Flash open speed 2**
160-169					**Flash open speed 3**
170-179					**Flash open speed 4 max.**
180-189					**Flash closed speed 1 min.**
190-199					**Flash closed speed 2**
200-209					**Flash closed speed 3**
210-219					**Flash closed speed 4 max.**
220-227					**Colours in black-out**
228-233					**Pan / Tilt in black-out**
234-255					**Open**

DMX CHANNEL	8	Parameter: **COLOUR**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-12					**White**
13-25					**Colour 1 (3200° K)**
26-38					**Colour 2 (5600°K)**
39-51					**Colour 3**
52-64					**BiColour 3/4**
65-77					**Colour 4**
78-90					**BiColour 4/5**
91-103					**Colour 5**
104-116					**BiColour 5/6**
117-129					**Colour 6**
130-142					**BiColour 6/7**
143-155					**Colour 7**
156-168					**Bicolour 7/8**
169-181					**Colour 8**
182-197					**Bicolour 8/white**
198-200					**Right rotation speed 1 max.**
201-203					**Right rotation speed 2**
204-206					**Right rotation speed 3**
207-209					**Right rotation speed 4**

210-212					**Right rotation speed 5**
213-215					**Right rotation speed 6**
216-218					**Right rotation speed 7**
219-221					**Right rotation speed 8**
222-224					**Right rotation speed 9 min**
225-228					**Stop**
229-231					**Left rotation speed 1 min.**
232-234					**Left rotation speed 2**
235-237					**Left rotation speed 3**
238-240					**Left rotation speed 4**
241-243					**Left rotation speed 5**
244-246					**Left rotation speed 6**
247-249					**Left rotation speed 7**
250-252					**Left rotation speed 8**
253-255					**Left rotation speed 9 max.**

DMX CHANNEL	**9**	Parameter: **EFFECTS**

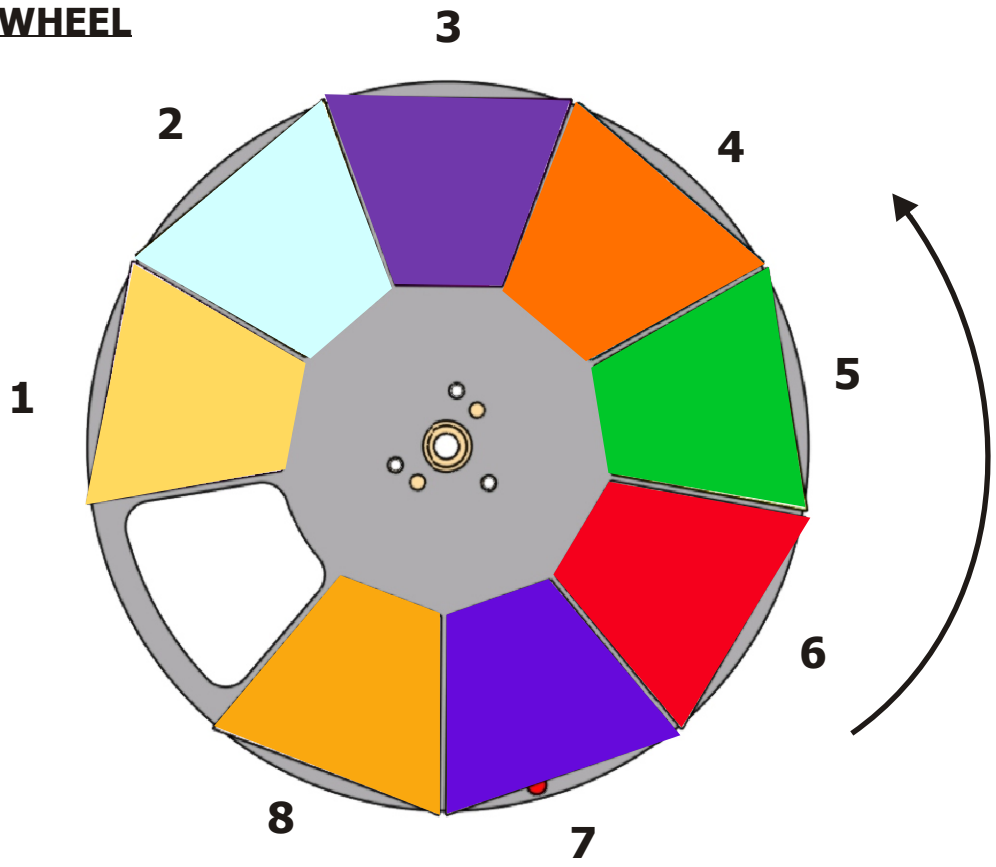
DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-85					**No effect**
86-170					**Frost 1**
171-255					**Frost 2**

DMX CHANNEL	**10**	Parameter: **RESET**

MODE 1 (DEFAULT)

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-200	**190**			**No Effect**	
201-239	**220**			**Internal Motors Reset**	
240-255	**247**			**Total Reset**	

17- COLOUR WHEEL



COL1

0507K004
CONV.FILTER CTO
TC3256

COL2

0507K003
CONV. FILTER CTB
DL542

COL3

0507C046.D01
WOOD SW 460

COL4

0507C051.D01
ORANGE LW590

COL5

0507C042.D01
GREEN WB5055

COL6

0507C047.D01
RED LW 640

COL7

0507C041.D01
DARK BLUE SW490

COL8

0507C053.D01
AMBER LW 550

NOTE

NOTE

NOTE

The information contained in this publication has been carefully prepared and checked. However, no responsibility will be taken for any errors. All rights are reserved and this document cannot be copied, photocopied or reproduced, in part or completely, without prior written consent from D.T.S.
D.T.S. reserves the right to make any aesthetic, functional or design modifications to any of its products without prior notice. D.T.S. assumes no responsibility for the use or application of the products or circuits described herein.

MADE IN ITALY CE

DTS

The Lighting Company

ISO 9001:2000
D.T.S. quality system
is certified to the
ISO 9001:2000 standard

PROUDLY MADE IN ITALY

D.T.S. products are designed
and manufactured at the D.T.S.
plants in Italy

0517I099

D.T.S. Illuminazione s.r.l - Via Fagnano Selve 10-12-14 47843 - Misano Adriatico (RN) Italy
Tel. +39 0541 611131 Fax +39 0541 611111 info@dts-lighting.it www.dts-lighting.it